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JC02 Rec'd PCT/PTO 23 JAN 2001

FORM PTO-1390 (Modified) (REV 11-98) U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371

ATTORNEY'S DOCKET NUMBER: **P24,748 USA**

U.S. APPLICATION NO. (IF KNOWN, SEE 37 CFR 1.5): 09/744351

INTERNATIONAL APPLICATION NO.	INTERNATIONAL FILING DATE	PRIORITY DATE CLAIMED
PCT/AU99/00562	**8 July 1999 (08.07.99)**	**23 July 1998 (23.07.98)**

TITLE OF INVENTION
Insulation Module for Vessels

APPLICANT(S) FOR DO/EO/US
Brian Keenan
Milivoj Vujic

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☒ This is an express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1).
4. ☒ A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
5. ☒ A copy of the International Application as filed (35 U.S.C. 371 (c) (2))
   a. ☐ is transmitted herewith (required only if not transmitted by the International Bureau).
   b. ☒ has been transmitted by the International Bureau
   c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☐ A translation of the International Application into English (35 U.S.C. 371(c)(2)).
7. ☒ A copy of the International Search Report (PCT/ISA/210). mailed on 10 August 99 (10.08.99)
8. ☒ Amendments to the claims of the International Application under PCT Article 19 (35 U.S C. 371 (c)(3))
   a. ☒ are transmitted herewith (required only if not transmitted by the International Bureau).
   b. ☒ have been transmitted by the International Bureau.
   c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
   d. ☐ have not been made and will not be made.
9. ☐ A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
10. ☐ An oath or declaration of the inventor(s) (35 U.S.C. 371 (c)(4)). (Unsigned by inventor)
11. ☒ A copy of the International Preliminary Examination Report (PCT/IPEA/409).
12. ☐ A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371 (c)(5)).

Items 13 to 20 below concern document(s) or information included:

13. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
14. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
15. ☒ A **FIRST** preliminary amendment.
16. ☒ A **SECOND** or **SUBSEQUENT** preliminary amendment
17. ☐ A substitute specification.
18. ☐ A change of power of attorney and/or address letter
19. ☒ Certificate of Mailing by Express Mail EL 663030328US
20. ☒ Other items or information:

Cover Page of Published International Application No. WO 00/05533 and text thereof
Written Opinion dated 24 February 2000 and Reply to Written Opinion dated 17 July 2000
Written Opinion dated 16 August 2000 and Reply to Written Opinion dated 21 August 2000
Text of application as amended 17 July 2000

PCTUS1/REV03

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JC07 Rec'd PCT/PTO 23 JAN 2001

U.S. APPLICATION NO. (IF KNOWN, SEE 37 CFR 1.5)	INTERNATIONAL APPLICATION NO.	ATTORNEY'S DOCKET NUMBER
09/744351	PCT/AU99/00562	P24,748 USA

21. The following fees are submitted:.

BASIC NATIONAL FEE (37 CFR 1.492 (a) (1) - (5)) :

		CALCULATIONS PTO USE ONLY
☒ Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2) paid to USPTO and International Search Report not prepared by the EPO or JPO	$1,000	
☐ International preliminary examination fee (37 CFR 1.482) not paid to USPTO but Internation Search Report prepared by the EPO or JPO	$840.00	
☐ International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO	$690.00	
☐ International preliminary examination fee paid to USPTO (37 CFR 1.482) but all claims did not satisfy provisions of PCT Article 33(1)-(4)	$670.00	
☐ International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(1)-(4)	$96.00	
ENTER APPROPRIATE BASIC FEE AMOUNT =		$1,000.00
Surcharge of **$130.00** for furnishing the oath or declaration later than ☐ 20 ☐ 30 months from the earliest claimed priority date (37 CFR 1.492 (e)).		$0.00

CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE	
Total claims	20 - 20 =	0	x $18.00	$0.00
Independent claims	3 - 3 =	0	x $80.00	$0.00
Multiple Dependent Claims **(check if applicable)**.			☐	$0.00
	TOTAL OF ABOVE CALCULATIONS		=	$1,000.00
Reduction of 1/2 for filing by small entity, if applicable. Verified Small Entity Statement must also be filed (Note 37 CFR 1.9, 1.27, 1.28) **(check if applicable)**.			☒	$500.00
	SUBTOTAL		=	$500.00
Processing fee of **$130.00** for furnishing the English translation later than ☐ 20 ☐ 30 months from the earliest claimed priority date (37 CFR 1.492 (f)).			+	$0.00
	TOTAL NATIONAL FEE		=	$500.00
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31) **(check if applicable).**			☐	$0.00
	TOTAL FEES ENCLOSED		=	$500.00
			Amount to be: refunded	$
			charged	$

☒ A check in the amount of **$500.00** to cover the above fees is enclosed.

☐ Please charge my Deposit Account No. in the amount of to cover the above fees.
A duplicate copy of this sheet is enclosed

☒ The Commissioner is hereby authorized to charge any fees which may be required, or credit any overpayment to Deposit Account No. **19-5425** A duplicate copy of this sheet is enclosed.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:

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REGISTRATION NUMBER

23 January 2001 (23.01.01)
DATE

09/744351

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January 23, 2001

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of Brian Keenan and Milivoj Vujic
Based on International Application No. PCT/AU99/00562
U.S. Application No. Not Yet Assigned
Filed: Herewith on January 23, 2001

For: INSULATION MODULE FOR VESSELS

(Atty. Docket No. P24,748-USA)

CERTIFICATE OF EXPRESS MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service on this date, January 23, 2001, in an envelope marked "Express Mail Post Office to Addressee," Mailing Label No. EL663030328US addressed to Box PCT, Commissioner for Patents, Washington, D.C., 20231.

Marge Iaconelli

Box PCT
Commissioner for Patents
Washington, D.C., 20231
Attn: DO/EO/US

PRELIMINARY AMENDMENT REDUCING THE NUMBER OF CLAIMS PRIOR TO CALCULATION OF THE FILING FEE

Sir:

Please cancel Claims 3 to 18 inclusive without prejudice.

The set of claims to which this amendment applies is the set that was filed by applicants in their letter dated July 17, 2000 to the Australian Patent Office (copy of set of claims included herewith).

The undersigned, as applicants' attorney, claims small entity status pursuant to 37 C.F.R. §1.27 on behalf of applicants who are individuals. The undersigned states further that applicants are under an obligation to assign the exclusive rights to a small business concern, as referred to in 37 C.F.R. §1.9(e), which has not assigned, granted, conveyed or licensed the invention and which is not under an obligation to assign, grant, convey, or license the invention.

Respectfully submitted,

Alexis Barron
(Registration No. 22,702)

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INSULATION MODULE FOR VESSELS

Field of the Invention

The present invention generally relates to insulation technology used in industrial and other applications, and in particular, to an insulation module for insulating a vessel, and a method of installing the insulation module. The present invention will be described with reference to its use on vessels used in chemical plants. It should however be appreciated that other applications of the insulation module are also envisaged.

Background to the Invention

In chemical plants, tanks and other vessels holding or carrying materials such as solids, gases or liquids generally need to be maintained within controlled temperature limits for efficient use within the process being conducted within the chemical plant. One way of providing this temperature control is to provide insulation on the vessels and pipes of the plant.

The insulation of a chemical plant is however an expensive and time consuming process. In the case of vessels, a commonly used method of installing the insulation is to initially embed a series of pins over the surface of the outer wall of the vessel with each pin extending laterally therefrom. The insulation material can then be supported on the pins, with a sealing washer being provided at the end of each pin to retain the insulation and any retaining mesh in position. An outer metal cladding is then installed over the top of the insulation to provide protection for the insulation.

The current installation process therefore involves a series of steps. It is not, however, always possible to install pins, as for example in the case of thermally relieved vessels. Other means, such as straps, are then required to hold the insulation in position.

Furthermore, because the insulation material generally used is made of fibrous material such as, for example, fibreglass, the insulation of this material can pose a safety risk to the workers on site such that all non-insulation work must cease while the insulation is being installed. This may necessitate working in night environments where the cost of lighting and incidental costs of employment are commensurately higher than during the day.

Furthermore, because the insulation material is installed immediately against the outer wall surface of the vessel, and because the insulation material can retain moisture, this can potentially lead to corrosion problems for the vessel.

Summary of the Invention

It is therefore an object of the present invention to avoid at least one of the above-noted disadvantages of existing insulation systems.

With this object in view, according to one aspect of the present invention, there is provided an insulation module for a process vessel including

an externally mounted pre-fabricated panel having integrally formed therein an outer surface layer, and a thermal insulation layer which opposes a portion of an outer wall of the process vessel; and

mounting means comprising a fastening system of complementary fastening components, none of which extend continuously about a periphery of the process vessel extending from the panel to the vessel for directly mounting the panel at a distance from the outer wall of the process vessel, to define an air gap between the panel and the outer wall of the process vessel when the insulation module is mounted relative thereto.

The provision of the air gap leads to a number of advantages:

(a) because the insulation layer is separated from the wall of the vessel by the air gap, this minimises the possibility of corrosion due to the retention of moisture within the insulation layer

(b) the air located within the air gap provides an additional insulation layer. This means that the insulation layer secured to the outer surface layer can be of a reduced thickness.

Furthermore, because the insulation layer is secured to the outer surface layer prior to insulation of the insulation module, the insulation layer can be treated to prevent the release of potentially hazardous fibres therefrom. For example, the insulation layer may be covered by material prior to securing to the outer surface layer. Alternatively, an adhesive paint may be sprayed on the outer surface of the insulation layer to prevent or minimise the release of fibres from that layer prior to securing to the outer surface layer. The applicant's co-pending

Australian Patent Application No. 26034/99 discloses a suitable sealing agent for this application of reducing fibre release.

The outer surface layer is dependent on the requirements of the plant

operator. For example, the outer layer may be a corrugated sheet such as "Spandeck" (trademark) or may be a flat sheet. This outer layer can be made of steel or aluminium although other materials are also envisaged.

The insulation layer may be secured to the outer surface layer by securing means. For example, the insulation layer may be retained between the outer surface layer and a support mesh. Fastening means may extend between the outer surface layer through the insulation layer to the supporting mesh. The fastening means may for example be in the form of a fixing screw extending from the outer surface layer and through the insulation layer and the support mesh. A speed clip member may be secured to a free end of each fixing screw to retain the support mesh, and therefore the insulation layer in position against the outer surface layer.

According to another possible arrangement, the insulation layer may be adhered directly to the outer surface layer.

The mounting means may include a series of brackets secured to and extending from the outer surface layer towards the vessel wall when the insulation module is in an installed position. Each bracket may include a mounting leg for supporting the panel of the insulation module away from the vessel wall.

Vessels used in chemical plants typically have a series of cleats provided about the outer wall of the vessel to allow cladding to be fixed to the outside of the vessel. To this end, the bracket mounting legs may be secured to the cleats when installing each insulation module on the vessel. Each mounting can be bolted to or welded to a respective cleat. Alternatively, where no cleats are provided, the bracket mounting legs may be welded directly to the vessel wall. Alternatively, fastening means may specifically be provided to secure the bracket mounting legs to the vessel wall. For example, a series of thread rod stubs may be welded to the vessel wall. Each bracket mounting leg may include at least one laterally extending foot having at least one opening therethrough to accommodate a respective thread rod stub. A nut may then be screwed onto each thread and stub to hold the bracket, and therefore the insulation module in position.

The insulation layer may be made of a variety of different material and may be of different thickness. For example, rock wool, fibreglass, PIR foam or PUR foam and mixtures thereof could be used for the insulation layer. Fire retardants may be incorporated therein. The present invention is not restricted by the insulation material used in the insulation layer.

The insulation modules may be installed in an abutting or closely adjacent relationship to form a matrix covering at least a substantial portion of the outer wall of the vessel and thereby provide the necessary insulation for that vessel. Insulation may also be provided for conical sections of vessels. The present invention therefore eliminates the need to embed pins within the outer wall of the vessel. Furthermore, the installation procedure is a less time consuming single step process. In addition, maintenance of the installation is facilitated because individual modules can be readily removed and replaced with new modules as so required.

According to another aspect of the present invention, there is provided a method of installing insulation on a vessel including mounting a plurality of insulation modules in an abutting or closely adjacent relationship on an outer surface of the vessel, each insulation module including a panel having an outer surface layer, and an insulation layer secured to the outer surface layer, and mounting means extending from the panel for mounting the insulation module on the outer wall of the vessel, wherein the method includes securing the mounting means to the vessel to thereby provide an air gap between the insulation layer and the outer wall of the vessel when the insulation modules are mounted relative thereto.

According to yet another aspect of the present invention, there is provided an insulated vessel including a series of insulation modules as described above mounted in an abutting or closely adjacent relationship on an outer surface of the vessel.

Brief Description of the Drawings

The various aspects of the invention may be more completely understood from the following description of an example arrangement of the present invention with reference to the accompanying drawings in which:

Figure 1 is a cross-sectional view of an insulation module according to the present invention; and

Figure 2 is a detailed partial cross-sectional view of the insulation module of Figure 1 mounted on a vessel wall.

Detailed Description of Preferred Embodiment of the Invention

The insulation module 1 includes a panel having an outer surface layer 3 formed, for example, from at least one sheet of "Spandeck" (trade mark). The use of other sheet material is possible depending on client requirements. An insulation layer 5 is secured to the underside of the outer surface layer 3. This insulation layer 5 can be of any one of a number of different materials. For example, the insulation layer 5 can be provided by sheets of rock wool covered by a material layer to prevent the release of fibres from the rock wool. Alternatively, the rock wool could be replaced with fibreglass. In any event, release of fibres may be prevented by sealing the fibrous material stock with a sealing agent, perhaps an acrylic emulsion. Use of sealing agents for this application is described in the Applicant's co-pending Australian Patent Application No. 26034/99, filed 30th April, 1999, the contents of which are hereby incorporated by reference.

The insulation layer 5 is secured to the outer surface layer 3 by means of a series of fixing screws 10 inserted through the outer surface layer 3 and the insulation layer 5. A sealing washer 11 is located between the head of the fixing screw 10 and the outer surface layer 3. A sheet of wire mesh 18 is provided on the opposing side of the insulation layer 5 to help to support that layer 5. An end of the fastening screw 10 extends through the wire mesh 18, and a speed clip 12 is attached to the end of each fixing screw 10 to hold the wire mesh 18, and therefore the insulation layer 5 in position.

The insulation module 1 further includes a series of brackets 7. Each bracket 7 includes an upper end 9 shaped to conform with the general profile of the Spandeck sheet 3 Adjacent sheets 3 overlap along their respective edge portions. These sheets 3 are then secured to the bracket 7 by means of a further fixing screw 13 extending through the overlapping edge portions of the sheets 3 and the bracket upper end 9. A further sealing washer 14 is located between

the head of the further fixing screw 13 and the Spandeck sheets 3.

Each bracket 7 further includes a mounting leg 8 which extends through the insulation layer 5 and the wire mesh 18 and extends beyond the assembled panel 6 of the insulation module 1.

A series of cleats 16 are typically provided along the exterior surface 17 of the vessel wall 2. The bracket 7 of the insulation module 1 are spaced along the insulation module 1 and correspond with the spacing of the cleats 16 on the vessel wall 2. The mounting leg 8 of each bracket 7 can then be secured to a respective cleat 16 to install the insulation module 1. The brackets 7 can be welded to or bolted to the cleats 16. Alternatively, where no cleats are provided, then the brackets 7 can be welded to the vessel wall 2.

A series of the insulation modules 1 can be installed in an abutting or closely adjacent relationship over the outer surface 17 of the vessel wall 2 to thereby at least substantially cover the vessel wall and thereby provide the necessary insulation for that vessel. Because the bracket 7 extends beyond the insulation module panel 6, an air gap 15 is provided between the insulation layer 5 and the vessel wall 2. This air gap 15 leads to the advantages described above.

It is also envisaged according to the present invention that the panel 6 of the insulation module 1 be formed from an outer surface layer having an insulation layer bonded directly to the outer surface layer.

Modifications and variations may be made to the present invention or consideration of the disclosure by the skilled reader of this disclosure. Such modifications and variations are considered to fall within the scope of the present invention.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. An insulation module for a process vessel including:

an externally mounted pre-fabricated panel having integrally formed therein an outer surface layer and a thermal insulation layer which opposes a portion of the outer wall of the process vessel; and

mounting means comprising a fastening system of complementary fastening components, none of which extend continuously about the periphery of the process vessel for directly mounting the panel at a distance from the outer wall of said process vessel to define an air gap between the panel and the outer wall of the process vessel when the insulation module is mounted relative thereto.

2. The insulation module of claim 1 wherein said insulation layer is a fibrous material treated to prevent escape of fibres.

3. The insulation module of claim 1 or 2 wherein said insulation layer is retained between the outer surface layer and a support mesh.

4. The insulation module of claim 3 wherein fastening means extend between the outer surface layer through the insulation layer to the supporting mesh.

5. The insulation module of claim 4 wherein said fastening means is at least one fixing screw.

6. The insulation module of claim 5 wherein a speed clip member is secured to a free end of said at least one fixing screw.

7. The insulation module of any one of the preceding claims wherein the insulation layer is adhered directly to the outer surface layer of said panel.

8. The insulation module of any one of the preceding claims wherein said mounting means includes a series of brackets secured to and extending from the outer surface layer towards the vessel wall when the insulation is in an installed position.

9. The insulation module of claim 8 wherein each bracket includes a mounting leg for supporting the panel of the insulation module away from the vessel wall.

10. The insulation module of claim 9 wherein said vessel has a series of cleats provided about the outer wall thereof and said mounting legs of said brackets are secured to said cleats.

11. The insulation module of claim 9 wherein fastening means secure said bracket mounting legs to the vessel wall.

12. The insulation module of claim 11 wherein said fastening means are thread rod stubs and each bracket mounting leg includes at least one laterally extending foot having at least one opening therethrough to accommodate respective thrread rod stubs.

13. The insulation module of any one of the preceding claims wherein said insulation layer is of material selected from the group consisting of rock wool, fibreglass, PIR foam, PUR form and mixtures thereof.

14. A method of installing insulation on a process vessel for containing a material to be maintained within controlled temperature limits for use in a process including mounting a plurality of insulation modules, each as claimed in any one of claims 1 to 13 in an abutting or closely adjacent relationship on an outer surface of the vessel, each insulation module including a panel having an outer surface layer, and an insulation layer secured to the outer surface layer, and

mounting means extending from the panel for mounting the insulation module on an outer wall of the vessel, wherein the method includes securing the mounting means to the vessel to thereby provide an air gap between the insulation layer and the outer wall of the vessel when the insulation modules are mounted relative thereto.

15. The method of claim 14 wherein said insulation layer is of fibrous material treated to prevent release of fibres.

16. The method of claim 15 wherein said fibrous material is treated with a sealing agent, optionally an acrylic emulsion.

17. The method of any one of claims 14 to 16 wherein said outer surface of said vessel includes the outer surface of a conical section of the vessel.

18. A process vessel insulated in accordance with the method of any one of claims 14 to 17.

ABSTRACT

Described is an insulation module (1) for a vessel (2) used in a chemical plant. The module may take the form of a panel having an outer surface layer (3) and an insulation layer (5) secured to the outer surface layer (3). Mounting means (10) extends from the panel (1) and enables mounting of the insulation module (1) on an outer wall (2) of the vessel. An air gap (15) is provided between the insulation layer (3) and the outer vessel wall (2) when the insulation module is mounted (1) on the vessel (2).

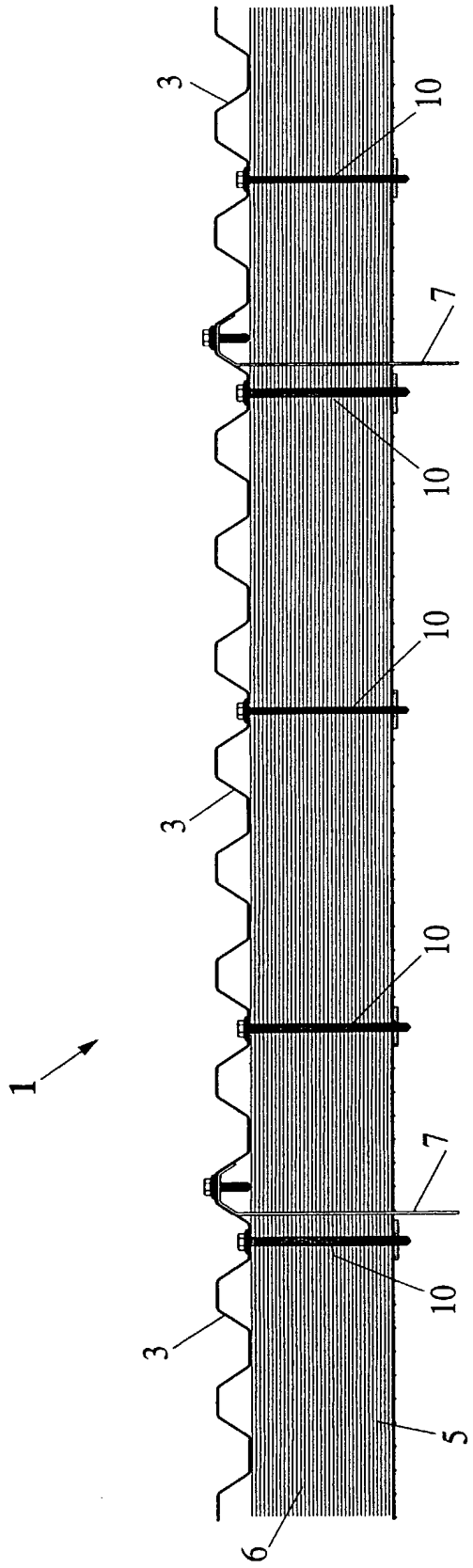

Fig 1.

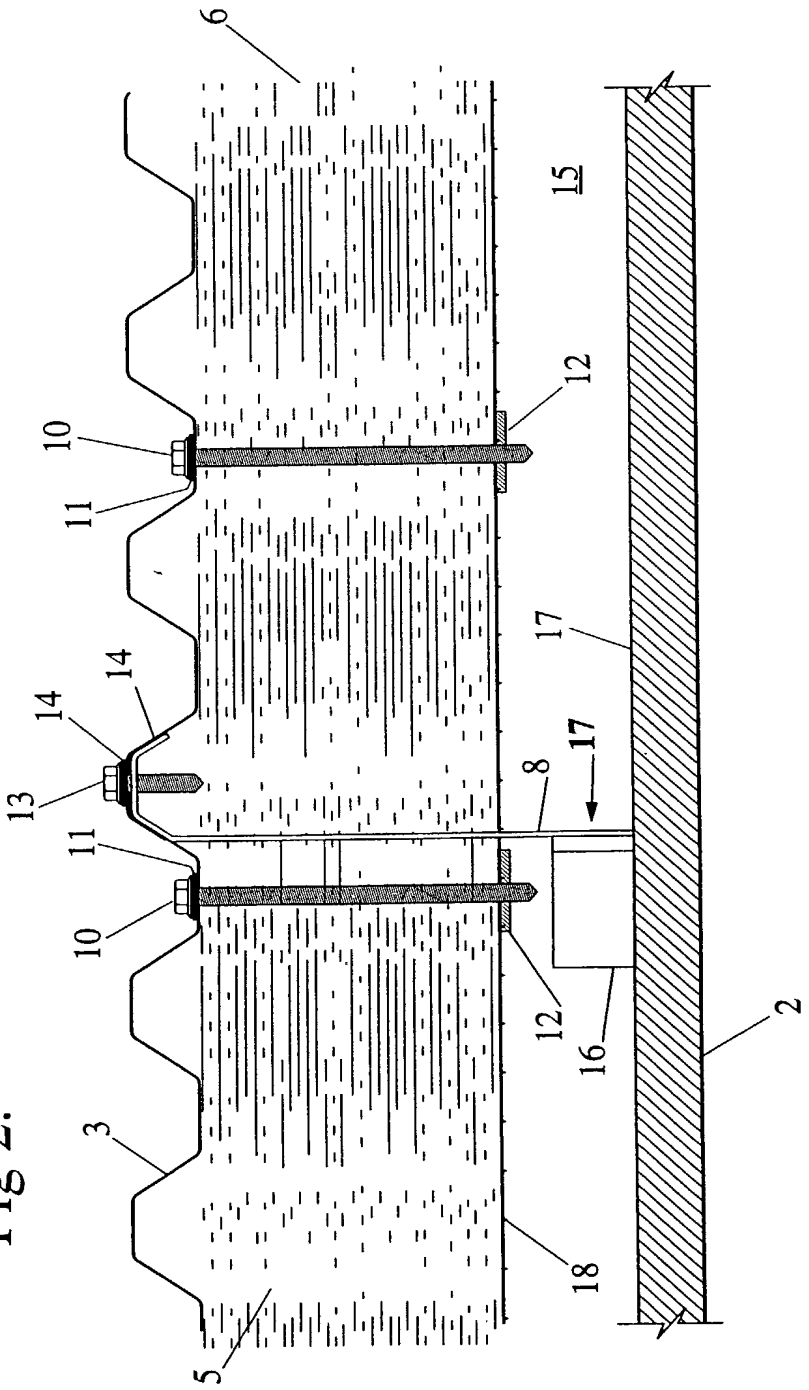

Fig 2.

PATENT

Attorney's Docket No. 20,421 USA

COMBINED DECLARATION AND POWER OF ATTORNEY

(ORIGINAL, DESIGN, NATIONAL STAGE OF PCT, SUPPLEMENTAL, DIVISIONAL, CONTINUATION OR CIP)

As a below named inventor, I hereby declare that:

TYPE OF DECLARATION

This declaration is of the following type:
(check one applicable item below)

_____ original

_____ design

_____ supplemental

NOTE: If the declaration is for an International Application being filed as a divisional, continuation or continuation-in-part do not check next item; check appropriate one of last three items.

__x__ national stage of PCT

NOTE: If one of the following 3 items apply then complete and also attach ADDED PAGED FOR DIVISIONAL, CONTINUATION OR CIP.

_____ divisional

_____ continuation

_____ continuation-in-part (CIP)

INVENTORSHIP IDENTIFICATION

WARNING: If the inventors are each not the inventors of all the claims an explanation of the facts, including the ownership of all the claims at the time the last claimed invention was made, should be submitted.

My residence, post office address and citizenship are as stated below next to my name, I believe that I am the original, first and sole inventor *(if only one name is listed below)* or an original, first and joint inventor *(if plural names are listed below)* of the subject matter which is claimed and for which a patent is sought on the invention entitled:

TITLE OF INVENTION

INSULATION MODULE FOR VESSELS

the specification of which: *(complete (a), (b) or (c))*

(a) _____ is attached hereto.

(b) __x__ was filed on 23 Jan. 2001 as ___ Serial No. 09/744351

or ___ Express Mail No., *as Serial No. not yet known* _____ and amended on _____ (if applicable).

NOTE: Amendments filed after the original papers are deposited with the PTO which contain new matter are not accorded a filing date by being referred to in the declaration. Accordingly, the amendments involved are those filed with the application papers or, in the case of a supplemental declaration, are those amendments claiming matter not encompassed in the original statement of invention or claims. See 37 CFR 1.67.

(c) __x__ was described and claimed in PCT International Application No. PCT/AU99/00562 filed on 8th July, 1999 and as amended under PCT Article 19 on _____ (if any).

ACKNOWLEDGEMENT OF REVIEW OF PAPERS AND DUTY OF CANDOR

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations. § 1.56(a).

_____ In compliance with this duty there is attached an information disclosure statement. 37 CFR 1.97.

PRIORITY CLAIM

I hereby claim foreign benefits under Title 35, United States Code, § 119 of any foreign application(s) for patent or inventor's certificate or of any PCT international application(s) designating at least one country other than the United States of America listed below and have also identified below any foreign application(s) for patent or inventor's certificate or any PCT international application(s) designating at least one country other than the United States of America filed by me on the same subject matter having a filing date before that of the application(s) of which priority is claimed.

(complete (d) or (e))

(d) ____ no such applications have been filed.

(e) __x__ such applications have been filed as follows.

NOTE: Where items (c) is entered above and the International Application which designated the U.S. claimed priority check item (c), enter the details below and make the priority claim.

EARLIEST FOREIGN APPLICATION(S), IF ANY FILED WITHIN 12 MONTHS (6 MONTHS FOR DESIGN) PRIOR TO THIS U.S. APPLICATION

COUNTRY	APPLICATION NUMBER	DATE OF FILING (day,month, year)	PRIORITY CLAIMED UNDER 37 USC 119
AU	PP4832	23.07.1998	☒ YES ☐ NO
			☐ YES ☐ NO
			☐ YES ☐ NO
			☐ YES ☐ NO
			☐ YES ☐ NO

ALL FOREIGN APPLICATION(S), IF ANY FILED MORE THAN 12 MONTHS (6 MONTHS FOR DESIGN) PRIOR TO THIS U.S. APPLICATION

POWER OF ATTORNEY

As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. (*List name and registration number*)

William H. Elliott, Jr.	Reg. No. 17,882
John T. Synnestvedt	Reg. No. 18,117
Charles H. Lindrooth	Reg. No. 20,659
Alexis Barron	Reg. No. 22,702
Joseph F. Posillico	Reg. No. 32,290
Albert L. Free	Reg. No. 16,705
Irving Newman	Reg. No. 22,638
Lisa B. Lane	Reg. No. 38,217
Naomi S. Biswas	Reg. No. 38,384
Mark A. Garzia	Reg. No. 35,517
Patrick J. Kelly	Reg. No. 34,638
Synnestvedt & Lechner	Reg. No. 11,101

(*check the following items, if applicable*)

_____ Attached as part of this declaration and power of attorney is the authorization of the above-named attorney(s) to accept and follow instructions from my representative(s).

SEND CORRESPONDENCE TO

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Philadelphia, PA 19107

DIRECT TELEPHONE CALLS TO:
(Name and telephone number)

Irving Newman, Esq.
(215) 923-4466

DECLARATION

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

SIGNATURE(S)

Full name of sole or first inventor Milivoj Vujic
Inventor's signature _____
Date 19/04/2001 Country of Citizenship Australian
Residence Willagee, Western Australia. Australia
Post Office Address 24 Wheyland Street, Willagee. W.A. 6156. Australia.

Full name of second joint inventor, if any _____
Inventor's signature _____
Date _____ Country of Citizenship _____
Residence _____
Post Office Address _____

09/441,351 .05/17/2001

PATENT

Attorney's Docket No. 20,421 USA

COMBINED DECLARATION AND POWER OF ATTORNEY

(ORIGINAL, DESIGN, NATIONAL STAGE OF PCT, SUPPLEMENTAL, DIVISIONAL, CONTINUATION OR CIP)

As a below named inventor, I hereby declare that:

TYPE OF DECLARATION

This declaration is of the following type:
(*check one applicable item below*)

_____ original

_____ design

_____ supplemental

NOTE: If the declaration is for an International Application being filed as a divisional, continuation or continuation-in-part do not check next item; check appropriate one of last three items.

__X__ national stage of PCT

NOTE: If one of the following 3 items apply then complete and also attach ADDED PAGED FOR DIVISIONAL, CONTINUATION OR CIP.

_____ divisional

_____ continuation

_____ continuation-in-part (CIP)

INVENTORSHIP IDENTIFICATION

WARNING: If the inventors are each not the inventors of all the claims an explanation of the facts, including the ownership of all the claims at the time the last claimed invention was made, should be submitted.

My residence, post office address and citizenship are as stated below next to my name, I believe that I am the original, first and sole inventor (*if only one name is listed below*) or an original, first and joint inventor (*if plural names are listed below*) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

TITLE OF INVENTION

Insulation Module for Vessels

the specification of which: (*complete (a), (b) or (c)*)

(a) _____ is attached hereto.

(b) _____ was filed on _____ as ___ Serial No. 0 /_____

or ___ Express Mail No., *as Serial No. not yet known* _____ and amended on _____ (if applicable).

NOTE: Amendments filed after the original papers are deposited with the PTO which contain new matter are not accorded a filing date by being referred to in the declaration. Accordingly, the amendments involved are those filed with the application papers or, in the case of a supplemental declaration, are those amendments claiming matter not encompassed in the original statement of invention or claims. See 37 CFR 1.67.

(c) __X__ was described and claimed in PCT International Application No. PCT/AU99/00562 filed on July 8, 1999 and as amended under PCT Article 19 on _____ (if any).

ACKNOWLEDGEMENT OF REVIEW OF PAPERS AND DUTY OF CANDOR

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations. § 1.56(a).

_____ In compliance with this duty there is attached an information disclosure statement. 37 CFR 1.97.

PRIORITY CLAIM

I hereby claim foreign benefits under Title 35, United States Code, § 119 of any foreign application(s) for patent or inventor's certificate or of any PCT international application(s) designating at least one country other than the United States of America listed below and have also identified below any foreign application(s) for patent or inventor's certificate or any PCT international application(s) designating at least one country other than the United States of America filed by me on the same subject matter having a filing date before that of the application(s) of which priority is claimed.

(complete (d) or (e))

(d) _____ no such applications have been filed.

(e) __X__ such applications have been filed as follows.

NOTE: Where items (c) is entered above and the International Application which designated the U.S. claimed priority check item (c), enter the details below and make the priority claim.

EARLIEST FOREIGN APPLICATION(S), IF ANY FILED WITHIN 12 MONTHS (6 MONTHS FOR DESIGN) PRIOR TO THIS U.S. APPLICATION

COUNTRY	APPLICATION NUMBER	DATE OF FILING (day, month, year)	PRIORITY CLAIMED UNDER 37 USC 119
AU	PP 4832	23.07.1998	☒ YES ☐ NO
			☐ YES ☐ NO
			☐ YES ☐ NO
			☐ YES ☐ NO
			☐ YES ☐ NO

ALL FOREIGN APPLICATION(S), IF ANY FILED MORE THAN 12 MONTHS (6 MONTHS FOR DESIGN) PRIOR TO THIS U.S. APPLICATION

09744351.050101

POWER OF ATTORNEY

As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. (*List name and registration number*)

William H. Elliott, Jr.	Reg. No. 17,882
John T. Synnestvedt	Reg. No. 18,117
Charles H. Lindrooth	Reg. No. 20,659
Alexis Barron	Reg. No. 22,702
Joseph F. Posillico	Reg. No. 32,290
Albert L. Free	Reg. No. 16,705
Irving Newman	Reg. No. 22,638
Lisa B. Lane	Reg. No. 38,217
Naomi S. Biswas	Reg. No. 38,384
Mark A. Garzia	Reg. No. 35,517
Patrick J. Kelly	Reg. No. 34,638
Synnestvedt & Lechner	Reg. No. 11,101

(*check the following items, if applicable*)

_____ Attached as part of this declaration and power of attorney is the authorization of the above-named attorney(s) to accept and follow instructions from my representative(s).

SEND CORRESPONDENCE TO

Irving Newman, Esq.
Synnestvedt & Lechner
2600 One Reading Center
1101 Market Street
Philadelphia, PA 19107

DIRECT TELEPHONE CALLS TO:
(Name and telephone number)

Irving Newman, Esq.
(215) 923-4466

DECLARATION

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

SIGNATURE(S)

Full name of **sole or first inventor** Brian Keenan
Inventor's signature X _____
Date X 18/01/01 Country of Citizenship Australia
Residence Mount Pleasant, W.A. 6153
Post Office Address 18 St. Michael's Terrace, Mount Pleasant, W.A. 6153
Australia

Full name of **second joint inventor**, if any _____
Inventor's signature _____
Date _____ Country of Citizenship _____
Residence _____
Post Office Address _____